

27. (Previously Presented) The method according to claim 15, wherein the radio network is the UMTS terrestrial radio access network using enhanced uplink dedicated channel (EUDCH) access employing HARQ protocol where erroneous packets are stored for subsequent combining.

REMARKS

Reconsideration and allowance of this application are respectfully requested in light of the above amendments and the following remarks.

Claim 15 has been amended to overcome the objection applied thereto and to incorporate the subject matter of dependent claims 24 and 25, which have been canceled. Claims 20-22 have been amended for clarity and to correspond to the amendment of claim 15. Claim 26 has been amended to depend directly from base claim 15.

Claims 15-27 were rejected, under 35 USC §103(a), as being unpatentable over Sarkkinen et al. (US 2005/0063347) in view of Chang et al. (US 2003/016698). The Applicants respectfully traverse these rejections as follows.

Claim 15 defines a method of retransmission-protocol reset synchronization for a radio network having a radio network controller (RNC) and a plurality of base stations in communication with mobile stations. The RNC communicates with a mobile terminal using a radio link control (RLC) procedure and a base station communicates with a mobile terminal using a medium access control (MAC) procedure. Multiple RLC procedures share a soft buffer, a reordering buffer in a mobile terminal, and a priority queue in a base station.

According to the method of claim 15, a reset procedure executed for an RLC procedure flushes MAC protocol data units (PDUs) associated with the reset RLC procedure from the shared soft buffer, reordering buffer, and priority queue. MAC PDUs associated with RLC procedures that are not reset are not flushed from the shared soft buffer, reordering buffer, and priority queue. The claimed subject matter supports efficient utilization of radio resources, avoiding operational malfunctions of a retransmission protocol, and avoiding losses of data (see specification page 21, last paragraph). (References herein to the specification and drawings are for illustrative purposes only and are not intended to limit the scope of the invention to the referenced embodiments.)

The Office Action proposes that when Sarkkinen's system is modified to include the RLC reset procedure disclosed by Chang, it is obvious for a skilled person to reset only one of several RLC buffers, since only one RLC buffer needs to be reset (see Office Action, paragraph bridging pages 4 and 5). More specifically, the Office Action proposes that Chang discloses performing an RLC reset procedure and a MAC reset procedure, thereby deleting MAC PDUs associated with the RLC procedure (see page 4, lines 4-12); additionally, the Office Action proposes that since Sarkkinen's system has several RLC buffers and only one of the buffers needs to be reset, the other RLC buffers do not need to be reset (see sentence bridging pages 4 and 5).

However, claim 15 recites that MAC PDUs associated with the reset RLC buffer are deleted, whereas MAC PDUs not associated with the reset RLC buffer are not deleted, i.e., maintained. The Office Action does not challenge this, but merely argues that the RLC buffer to be reset is reset and the RLC buffer not to be reset is not reset; this is evident in itself, but does not teach anything with respect to MAC protocol behavior.

Further, Chang is cited by the Office Action for disclosing that MAC PDUs associated with an RLC procedure that is to be reset are flushed. However, Chang discloses that "all the data blocks stored in the sender MAC-hs are discarded" (see Chang paragraph [0079]). Thus, the MAC behavior of Chang's system exemplifies the problem that the claimed invention solves. More specifically, Chang's MAC reset deletes all PDUs without considering the particular RLC reset that triggered the MAC reset. Chang does not even identify the problem the Applicants' claimed invention solves and, thus, gives no hint to a skilled person in the direction of the invention.

Therefore, modifying Sarkkinen's system to incorporate Chang's RLC reset procedure would cause a MAC reset to delete all MAC PDUs, without considering that there might be MAC PDUs belonging to another RLC buffer that is not reset. This is different from the claimed subject matter of Applicants' claim 15.

Contrary to the Office Action's proposal, it would not have been obvious to delete only those MAC PDUs that are associated with the reset RLC buffer, while maintaining the remaining MAC PDUs associated with other RLC buffers. As already mentioned, the applied references provide no hints whatsoever that would lead a skilled person to the Applicants' claimed subject matter. Quite to the contrary, Chang would bias a skilled person in the opposite direction, namely to delete all MAC PDUs.

Moreover, presently amended claim 15 now recites the subject matter of canceled claims 24 and 25, thereby specifying in more detail how it is achieved that only MAC PDUs belonging to the reset RLC buffer are deleted.

As described in an exemplary, non-limiting, embodiment of the claimed subject matter discussed on page 24 of the Applicants' specification, a 4-bit field (reset ID, RID) in the MAC PDU format contains information on a particular logical channel. To distinguish the RLC reset PDU in a Node B, a reserved value in a C/T field is used if logical channel multiplexing is applied to indicate an RLC reset. To reduce overhead, the field should only be appended if logical channel multiplexing is enabled. If the field is not present, the whole priority queue can be flushed.

The Office Action proposes that Chang discloses, in paragraph [0074], a MAC PDU having a reset identification field with a logical channel identification (see Office Action page 6, third paragraph). However, Chang's paragraph [0074] discloses modifying a control frame type for a MAC-hs reset caused by an RLC reset; more specifically, Chang discloses setting a new control frame type "MAC-hs reset" to a value of "0000 0111" (see Chang paragraph [0074], lines 14-18). Therefore, contrary to the Office Action's proposal, Chang's paragraph [0074] fails to teach anything with respect to MAC PDUs containing a reset identification (RID) field having a logical channel identification.

Furthermore, claim 15 recites that the MAC reset with partial flush is initiated when receiving a MAC PDU with a predefined inband identification and an RID field. The Office Action proposes that Sarkkinen discloses this subject matter in paragraph [0117] (see Office Action page 6, fourth paragraph). However, Sarkkinen discloses, in paragraph [0117], how UE-IDs of MAC PDUs for different RLC buffers are to be set. A UE-ID field provides an identifier of the UE on common transport channels and, thus, only associates one RLC buffer to a UE. For instance, a UE-ID for an RLC buffer z is set to x, since the data in this buffer is meant for UE x

(see Sarkkinen paragraph [0117]). Contrary to the Office Action's proposal, Sarkkinen does not disclose, in paragraph [0117], a MAC PDU containing a predefined inband identification and a reset identification field comprising a logical channel identification for initiating a partial flush.

Accordingly, the Applicants submit that the teachings of Sarkkinen and Chang, considered individually or in combination, do not render obvious the subject matter now defined by claim 15. Therefore, allowance of claim 15 and all claims dependent therefrom is warranted.

With regard to dependent claim 26, the Office Action proposes that Sarkkinen discloses, in paragraph [0121], a MAC release request message having an RID field as an informational element for initiating a MAC reset procedure (see Office Action page 6, second to last paragraph). However, Sarkkinen does not mention a MAC release request message in paragraph [0121] or a MAC release request with an RID field as an informational element. Instead, Sarkkinen's paragraph [0121] describes Fig. 13 and, in particular, the relations between different RLC buffers, priority levels, and MAC buffers. Chang is not cited for supplementing the teachings of Sarkkinen in this regard.

Accordingly, Sarkkinen and Chang do not render obvious the subject matter defined by claim 26. Therefore, allowance of claim 26 is warranted for this independent reason.

In view of the above, it is submitted that this application is in condition for allowance, and a notice to that effect is respectfully solicited.

If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to telephone the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,

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